

IN THE CLAIMS

Please delete claims 1-51¹ without prejudice or disclaimer to the subject matter recited therein.

Please add new claims 52-101 as follows:

--52. A method for suppressing or reducing the immune response of a mammal to an antigen comprising:

orally or enterally administering to the mammal an effective immune suppressive dose of a plant tissue or a partially purified plant tissue extract containing said antigen or an immunosuppressive fragment thereof, said plant tissue or partially purified plant tissue extract being obtained from a transgenic plant expressing said antigen or immunosuppressive fragment thereof.

53. The method of claim 52 wherein the antigen is a mammalian autoantigen.

54. The method of claim 52, wherein the autoantigen is involved in the pathogenesis of an autoimmune disease.

¹ The amended sheets of claims in the originally filed PCT application contained claims numbered 1-52. However, these claims were misnumbered as there was no claim numbered 44. In the parent application, the United States Patent and Trademark Office renumbered the original claims pursuant to 37 C.F.R. § 1.126 so as to be numbered 1-51. Applicants respectfully request that the Office renumber the originally filed claims in this divisional application as well so as to be numbered 1-51. Thus, the present amendment properly adds new claims beginning with claim 52.

55. The method of claim 52, wherein the autoantigen is involved in the pathogenesis of a pre-clinical stage of an autoimmune disease.

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56. The method of claim 53, wherein the autoantigen is involved in the pathogenesis of a disease selected from the group consisting of lupus erythematosus, thyroiditis, multiple sclerosis, uveitis, Crohns' Disease and autoimmune diabetes, provided that the autoantigen involved in autoimmune diabetes is not glutamic acid decarboxylase.

57. The method of claim 53, wherein the autoantigen is selected from the group consisting of myelin basic protein, thyroglobulin, collagen, islet cell antigen and insulin.

58. The method of claim 53, wherein the transgenic plant is selected from the group consisting of potato, tomato, alfalfa, canola, and low alkaloid tobacco.

59. The method of claim 52, wherein the plant tissue or partially purified plant tissue extract is selected from the group consisting of at least one plant part, an extract of total plant protein, and a partially purified plant protein preparation.

60. The method of claim 52, wherein the plant tissue or partially purified plant tissue extract is from at least one plant part selected from the group consisting of leaves, stems, seeds and tubers.

61. The method of claim 52, wherein the transgenic plant is transformed with a DNA construct for transforming a plant, said construct comprising a Cauliflower Mosaic Virus Ehn-35S promoter operably linked to a DNA coding sequence and further comprising a termination sequence in proper reading frame with the DNA coding sequence, wherein the termination sequence is a nopaline synthase termination sequence and the DNA coding sequence encodes the antigen.

62. The method of claim 53, wherein the mammal is a human.

63. A pharmaceutical composition for suppressing or reducing the immune response of a mammal to an antigen comprising:

an oral or enteral dosage form comprising an effective immunosuppressive dose of a plant tissue or partially purified plant tissue extract containing said antigen or an immunosuppressive fragment thereof and a pharmaceutically acceptable carrier, said plant tissue or partially purified plant tissue extract being obtained from a transgenic plant expressing said antigen or immunosuppressive fragment thereof.

64. The composition of claim 63, wherein the antigen is a mammalian autoantigen.

65. The composition of claim 63, wherein the autoantigen is involved in the pathogenesis of an autoimmune disease.

66. The composition of claim 63, wherein the autoantigen is involved in the pathogenesis of a pre-clinical stage of an autoimmune disease.

67. The composition of claim 63, wherein the autoantigen is involved in the pathogenesis of a disease selected from the group consisting of lupus erythematosus, thyroiditis, multiple sclerosis, uveitis, Crohns' Disease and autoimmune diabetes, provided that the autoantigen involved in autoimmune diabetes is not glutamic acid decarboxylase.

68. The composition of claim 63, wherein the autoantigen is selected from the group consisting of myelin basic protein, thyroglobulin, collagen, islet cell antigen and insulin.

69. The composition of claim 63, wherein the transgenic plant is selected from the group consisting of potato, tomato, alfalfa, canola and low alkaloid tobacco.

70. The composition of claim 63, wherein the plant tissue or partially purified plant tissue extract is from at least one plant part selected from the group consisting of leaves, stems, seeds and tubers.

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71. The composition of claim 63, wherein the transgenic plant is transformed with a DNA construct for transforming a plant, said construct comprising a Cauliflower Mosaic Virus Ehn-35S promoter operably linked to a DNA coding sequence and further comprising a termination sequence in proper reading frame with the DNA coding sequence, wherein the termination sequence is a nopaline synthase termination sequence and the DNA coding sequence encodes the antigen.

72. The method of claim 52, wherein the antigen is a mammalian transplantation antigen.

73. The method of claim 72, wherein the transplantation antigen is a human Major Histocompatibility Complex (MHC) protein.

74. The method of claim 73, wherein the MHC protein is selected from the group consisting of an MHC class I protein, an MHC class II protein, an MHC class IIa chain and an MHC class IIb chain.

75. The method of claim 72, wherein the transgenic plant is selected from the group consisting of potato, tomato, alfalfa, canola and low alkaloid tobacco.

76. The method of claim 72, wherein the plant tissue or partially purified plant tissue extract is from at least one plant part selected from the group consisting of leaves, stems, seeds and tubers.

77. The method of claim 72, wherein the mammal is a human.

78. The composition of claim 63, wherein the antigen is a mammalian transplantation antigen.

79. The composition of claim 78, wherein the transplantation antigen is a human Major Histocompatibility Complex (MHC) protein.

80. The composition of claim 78, wherein the MHC protein is selected from the group consisting of an MHC class I protein, an MHC class II protein, an MHC class IIa chain and an MHC class IIb chain.

81. The composition of claim 78, wherein the transgenic plant is selected from the group consisting of potato, tomato, alfalfa, canola and low alkaloid tobacco.

82. The composition of claim 78, wherein the plant tissue or partially purified plant tissue extract is from at least one plant part selected from the group consisting of leaves, stems, seeds and tubers.

83. The composition of claim 78, wherein the mammal is a human.

84. A method for suppressing the rejection of engrafted donor tissue in a recipient mammal comprising orally or enterally administering to the mammal an effective immunosuppressive dose of a plant tissue or a partially purified plant tissue extract containing a transplantation antigen of said donor tissue or an immunosuppressive fragment thereof, said plant tissue or partially purified plant tissue extract being obtained from a transgenic plant expressing said transplantation antigen or immunosuppressive fragment thereof.

85. The method of claim 84, wherein the transplantation antigen is an MHC protein.

86. The method of claim 85, wherein the MHC protein is selected from the group consisting of an MHC class I protein, an MHC class II protein, an MHC class IIa chain and an MHC class IIb chain.

87. The method of claim 84, wherein the transgenic plant is selected from the group consisting of potato, tomato, alfalfa, canola and low alkaloid tobacco.

88. A transgenic plant comprising a plant expressing a recombinant mammalian transplantation antigen.

89. The transgenic plant of claim 88, wherein the transplantation antigen is a human Major Histocompatibility Complex (MHC) protein.

90. The transgenic plant of claim 89, wherein the MHC protein is selected from the group consisting of an MHC class I protein, an MHC class II protein, an MHC class IIa chain and an MHC class IIb chain.

91. The transgenic plant of ~~claim~~ 88, wherein the plant is selected from the group consisting of potato, tomato, alfalfa, canola, and low alkaloid tobacco.

92. A transgenic plant comprising a plant expressing a recombinant autoantigen other than GAD.

93. The transgenic plant of claim 92, wherein the autoantigen is selected from the group consisting of myelin basic protein, thyroglobulin, collagen, islet cell antigen and insulin.

94. The transgenic plant of claim 92, wherein the plant is selected from the group consisting of potato, tomato, alfalfa, canola, and low alkaloid tobacco.

95. An edible plant material comprising a plant tissue or partially purified plant tissue extract obtained from a transgenic plant of claim 88.

96. An edible plant material comprising a plant tissue or partially purified plant tissue extract obtained from a transgenic plant of claim 92.

97. A method for preventing the development of an autoimmune disease in a mammal comprising orally or enterally administering to the mammal an effective amount of a plant tissue or a partially purified plant tissue extract containing an autoantigen associated with the disease or an immunosuppressive fragment thereof, said plant tissue or partially purified plant tissue extract being obtained from a transgenic plant expressing said autoantigen or immunosuppressive fragment thereof.

98. The method of claim 97, wherein said mammal is a human.

99. The method of claim 98, wherein said autoimmune disease is autoimmune
diabetes.

100. The method of claim 99, wherein said antigen is human GAD.

101. The method of claim 97, wherein said autoimmune disease is in a preclinical
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